Huawei MA5800 Series - Official Technical Overview & Hardware Datasheet

SYSTEMS ENGINEERING TECHNICAL REFERENCE MANUAL: HUAWEI MA5800 SERIES OPTICAL LINE TERMINAL

EXECUTIVE SUMMARY

The Huawei SmartAX MA5800 Series represents a paradigm shift in optical access network infrastructure, establishing a new benchmark for carrier-grade OLT (Optical Line Terminal) platforms. As the industry's first distributed architecture OLT, the MA5800 series transcends the limitations of traditional centralized designs, delivering unprecedented scalability, throughput, and intelligence to meet the demands of the Gigaband era .

Engineered to support a unified platform for GPON, XG-PON, XGS-PON, 50G-PON, 10G-EPON, EPON, and P2P GE/10GE interfaces, the MA5800 series enables a wide array of deployment scenarios including FTTH, FTTB, FTTC, and FTTD . This versatility allows service providers to consolidate multiple services—from high-definition video and enterprise connectivity to mobile backhaul and Wi-Fi hotspot aggregation—onto a single, simplified network architecture, thereby significantly reducing operational expenditures (OPEX) .

ARCHITECTURE & CHASSIS DESIGN

The core innovation of the MA5800 lies in its pioneering distributed architecture. Unlike traditional OLTs where all control and forwarding functions are centralized on the main control board, the MA5800 distributes service processing across each individual service board . This design inherently eliminates system bottlenecks, substantially increasing switching capacity and performance. The distributed architecture provides non-blocking access and ensures that the system can seamlessly scale to accommodate future 50G PON technologies without requiring a full hardware overhaul .

The series offers four distinct chassis models, tailored for various capacity requirements and central office constraints, as detailed below.

HARDWARE FEATURES & MODULARITY

The MA5800 chassis are engineered for high availability and flexibility. Key features include:

- High-Density Ports: High-density 16-port 10G PON service boards and 16-port GPON boards maximize subscriber capacity per slot, with up to 272 PON ports in the flagship MA5800-X17 model .
- Flex-PON Technology: The platform supports Flex-PON solution, enabling a single board to support GPON, XG-PON, and XGS-PON by simply changing the optical module. This innovative approach allows operators to evolve their networks smoothly from GPON to 10G PON without costly and complex board replacements .
- High-Availability Design: The system supports 1+1 control board redundancy, power supply redundancy, and Type B/Type C PON protection, ensuring carrier-grade reliability with a system availability of > 99.999% .
- Versatile Uplink Options: Control boards support diverse uplink configurations, including 8x10GE/GE, 2x100GE plus 4x10GE/GE, and 4x100GE plus 8x25GE/10GE/GE, offering exceptional flexibility for network integration .

COMPLIANCE & STANDARDS

The MA5800 series is designed to meet the rigorous demands of modern

telecom environments. It adheres to stringent industry standards for environmental sustainability and network resilience:

- Environmental Compliance: The platform is certified to the Code of Conduct (CoC) V8 energy efficiency standard, featuring six-level dynamic energy-saving mechanisms to reduce power consumption .
- Reliability and Resilience: With a Mean Time Between Failures (MTBF) of approximately 45 years and a Field Replaceable Unit (FRU) repair time of approximately 2 hours, the MA5800 is a testament to robust engineering .
- Layer 2/3 Protocols: Comprehensive support for Layer 2 (VLAN, PPPoE+) and Layer 3 (OSPF, ISIS, BGP) features, alongside MPLS, PWE3, and advanced QoS/HQoS, ensures seamless integration into complex service provider networks .
- Security: The platform integrates line-rate encryption and robust access control lists (ACLs) to secure the network edge and meet critical regulatory compliance requirements .

TECHNICAL SPECIFICATIONS

Parameter	**MA5800-X17**	**MA5800-X15**	**MA5800-X7**	**MA5800-X2**
Form Factor	11U, 21-inch Width	11U, 19-inch Width	6U, 19-inch Width	2U, 19-inch Width

Dimensions (H x W x D)	486 x 493 x 287 mm	486 x 442 x 287 mm	263.9 x 442 x 268.7 mm	88.1 x 442 x 268.7 mm
Max Weight (Fully Loaded)	45 kg	35 kg	26 kg	9.4 kg
Max Payload Switching Capacity (Control Board Load Sharing)	MPLG: 7.3 Tbit/s, MPLH: 8.0 Tbit/s	MPSD: 560 Gbit/s	MPSD: 560 Gbit/s	N/A
Max Payload Bandwidth per Service Slot	200 Gbit/s	100 Gbit/s	100 Gbit/s	N/A
Max GPON / XG-PON Ports	272	240	112	32
Max GE / FE Ports	816	720	336	96
Max 10GE / GE Ports	408	360	168	16
Supply Voltage	– 38.4V to – 72V DC	– 38.4V to – 72V DC	– 38.4V to – 72V DC	DC: –38.4V to – 72V; AC:

				100-240V
Operating Temperature	–40°C to +65°C	–40°C to +65°C	–40°C to +65°C	–40°C to +65°C
Max MAC Addresses	262,143	262,143	262,143	262,143
System Reliability (Typical)	> 99.999% Availability	> 99.999% Availability	> 99.999% Availability	> 99.999% Availability

ORDERING OPTIONS

The Huawei SmartAX MA5800 series offers a flexible ordering structure to meet diverse deployment needs. The primary chassis options are:

- MA5800-X17: High-capacity central office model with 17 service slots, ideal for dense urban deployments and large-scale FTTH rollouts.
- MA5800-X15: High-capacity model with 15 service slots, optimized for space-constrained 19-inch ETSI racks.
- MA5800-X7: Medium-capacity model with 7 service slots, suitable for regional central offices and enterprise campus networks.
- MA5800-X2: Compact, low-capacity model with 2 service slots, designed for

remote terminals and low-density areas.

Note: Ordering details include a comprehensive list of control boards (MPLA, MPLB, MPLG, MPLH), service boards (GPON, XG-PON, XGS-PON, EPON), optical modules, and power supply units. For a complete Bill of Materials (BoM) and specific SKU inquiries, please contact your Huawei sales representative or authorized channel partner.